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EXAMINER

NGUYEN, TOAN D

ART UNIT PAPER NUMBER

2665

DATE MAILED: 02/04/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/707,690

Applicant(s)

HWU, NAN SHAN

Examiner

Toan D Nguyen

Art Unit

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— The MAILING DATE of this communication appears on the cover sheet with the correspondence address —

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 07 November 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 November 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Oath/Declaration***

1. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because: The serial number and the filing date of the specification are not filled out in the blank on page 1 of Declaration.

It does not identify the mailing address of each inventor. A mailing address is an address at which an inventor customarily receives his or her mail and may be either a home or business address. The mailing address should include the ZIP Code designation. The mailing address may be provided in an application data sheet or a supplemental oath or declaration. See 37 CFR 1.63(c) and 37 CFR 1.76.

### ***Drawings***

2. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: In figures 2 and 3, references 27 and 28 (page 8 lines 17-24). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

4. Claims 7, 9, 11-15, 22 and 24 are objected to because of the following informalities:

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In claim 7 line 2, it is suggested to change “the fiber optic network” to “the high speed fiber optic network cable”.

In claim 9 line 2, it is suggested to change “the fiber optic network cable” to “the high speed fiber optic network cable”.

In claim 9 line 3, it is suggested to change “the fiber optic network” to “the high speed fiber optic network cable”.

In claim 11 line 1, it is suggested to change “an active standby” to “the active standby”.

In claim 11 line 2, it is suggested to change “the signal” to “a signal”.

In claim 12 line 1, it is suggested to change “an active standby” to “the active standby”.

In claim 13 line 1, it is suggested to change “an active standby” to “the active standby”.

In claim 14 line 1, it is suggested to change “an active standby” to “the active standby”.

In claim 14 line 3, it is suggested to change “the fiber optic network cable” to “the fiber optic cable”.

In claim 15 line 10, it is suggested to change “the fiber optic sub-network” to “the sub-network”.

In claim 22 line 2, it is suggested to change “the fiber optic network” to “the sub-network”.

In claim 24 line 2, it is suggested to change “the fiber optic network cable” to “the fiber optic cable”.

In claim 24 line 3, it is suggested to change “the fiber optic network” to “the sub-network”.

Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 7 and 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deitz et al. (U.S. Patent 6,578,158 B1) in view of El-Batal (U.S. Patent 6,192,027 B1).

For claim 1, Deitz et al. disclose method and apparatus for providing a RAID controller having transparent failover and failback comprising:

a first and a second controller, each controller having an operating state (figure 1, col. 4 lines 62-64);

an IO module (figure 1, col. 5 lines 41-46);

a network connector (figure 1, col. 5 lines 18-19); and

a high speed fiber optic network cable for operably connecting the first to controller, the second controller and the IO module, wherein a signal is transmitted over the high speed fiber optic network cable at a rate of at least 100 Mb/s (figure 1, col. 5 lines 18-25).

However, Deitz et al. do not disclose a rate of at least 100 Mb/s. In an analogous art, El-Batal discloses a rate of at least 100 Mb/s (col. 4 line 35).

One skilled in the art would have recognized a rate of at least 100 Mb/s to use the teachings of El-Batal in the system of Deitz et al. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to use the rate of at least 100 Mb/s as taught by El-Batal in Deitz et al.'s system with the motivation being to provide a RAID disc

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array controller system with supporting dual 100 Mb/s Fibre Channel host ports and quad Fibre Channel disc ports (col. 4 lines 34-44).

For claim 7, Deitz et al. disclose wherein the network connector is hub for controlling signal communication over the fiber optic network (figure 1, col. 5 lines 18-25).

For claim 10, Deitz et al. disclose method and apparatus for providing a RAID controller having transparent failover and failback comprising the steps of:

providing a first and a second controller, each controller having an operating state (figure 1, col. 4 lines 62-64);

providing an IO module (figure 1, col. 5 lines 41-46); and

operably connecting the first controller, the second controller and the IO module through a connector and a fiber optic cable (figure 1, col. 5 lines 18-32), the operably connected first controller, the second controller, the IO module, the fiber optic cable and the connector forming a sub-network (figure 1, col. 5 lines 18-32 and col. 5 lines 41-46).

However, Deitz et al. do not disclose wherein data is transferred throughout the sub-network at a rate of at least 100 Mb/s. In an analogous art, El-Batal discloses wherein data is transferred throughout the sub-network at a rate of at least 100 Mb/s (col. 4 line 35).

One skilled in the art would have recognized a rate of at least 100 Mb/s to use the teachings of El-Batal in the system of Deitz et al. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to use the rate of at least 100 Mb/s as taught by El-Batal in Deitz et al.'s system with the motivation being to provide a RAID disc array controller system with supporting dual 100 Mb/s Fibre Channel host ports and quad Fibre Channel disc ports (col. 4 lines 34-44).

For claim 11, Deitz et al. disclose further comprising controlling the transmission of the signal on the sub-network (figure 1, col. 5 lines 18-25).

For claim 12, Deitz et al. disclose wherein the step of controlling signal communication on the sub-network comprises a hub (figure 1, col. 5 lines 18-25).

7. Claims 2-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deitz et al. (U.S. Patent 6,578,158 B1) in view of El-Batal (U.S. Patent 6,192,027 B1) further in view of Flood et al. (U.S. Patent 4,937,777).

For claims 2 and 3, Deitz et al. in view of El-Batal disclose wherein each controller comprises:

a processor (figure 1, col. 5 line 54);

an operating system executed by the processor (figure 1, col. 5 lines 48-55).

However, Deitz et al. in view of El-Batal do not disclose:

a co-processor;

a co-operating system executed by the co-processor wherein the operating system and the co-operating system cooperate to transfer data between the first controller, the second controller and the IO module.

In an analogous art, Flood et al. disclose:

a co-processor (figure 4, col. 11 lines 54-61);

a co-operating system executed by the co-processor (figure 4, col. 11 lines 51-61). Flood et al. in view of Deitz et al. and El-Batal disclose wherein the operating system and the co-operating system cooperate to transfer data between the first controller, the second controller and the IO module (col. 10 lines 56-65 and col. 11 lines 52-61). Flood et al. disclose further

wherein the operating system is embedded in the processor (col. 11 lines 52-58 as set forth in claim 3).

One skilled in the art would have recognized a co-processor to use the teachings of Flood et al. in the system of Deitz et al. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to use the co-processor as taught by Flood et al. in Deitz et al.'s system with the motivation being to execute specific types of instructions included in the control program (col. 11 lines 52-54).

8. Claims 4-6, 8 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deitz et al. (U.S. Patent 6,578,158 B1) in view of El-Batal (U.S. Patent 6,192,027 B1) further in view of Lelaure et al. (U.S. Patent 6,640,314 B1).

For claims 4-6, Deitz et al. in view of El-Batal do not disclose wherein each controller further comprises a network identifier and the network identifier of each controller is selected in response to the operating state of its respective controller. In an analogous art, Lelaure et al. disclose wherein each controller further comprises a network identifier and the network identifier of each controller is selected in response to the operating state of its respective controller (figure 2, col. 3 lines 17-21). Lelaure et al. disclose further wherein the network identifier is an Internet Protocol address (figure 2, col. 3 lines 17-21 as set forth in claim 5); wherein the network address identifier is a Media Access Control address (figure 2, col. 3 lines 17-21 as set forth in claim 6).

One skilled in the art would have recognized a network identifier to use the teachings of Lelaure et al. in the system of Deitz et al. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to use the network identifier as taught by



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Lelaure et al. in Deitz et al.'s system with the motivation being assigned independently of the "MAC" hardware address and uniquely identifies the application that is running on the equipment in the physical sense of term (col. 2 lines 32-39).

For claims 8 and 13, Deitz et al. in view of El-Batal do not disclose comprising a master-slave type application layer protocol to ensure that only one signal is being transmitted at a time. In an analogous art, Lelaure et al. disclose a master-slave type application layer protocol to ensure that only one signal is being transmitted at a time (col. 2 lines 35-37). Lelaure et al. disclose further using a master-slave type application layer protocol to ensure that only one signal is being transmitted at a time (col. 2 lines 35-37 as set forth in claim 13).

One skilled in the art would recognized a master-slave type application layer protocol to use the teachings of Lelaure et al. in the system of Deitz et al. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to use the master-slave type application layer protocol as taught by Lelaure et al. in Deitz et al.'s system with the motivation being to implement a TCP/IP protocol stack supplied by the real time operating system of each of couplers (col. 2 lines 40-42).

9. Claims 9 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deitz et al. (U.S. Patent 6,578,158 B1) in view of El-Batal (U.S. Patent 6,192,027 B1) further in view of Crayford (U.S. Patent 5,673,254).

For claims 9 and 14, Deitz et al. in view of El-Batal do not disclose wherein the network connector is a switch for controlling signal communication over the fiber optic network cable to avoid signal collisions and maintain determinism throughout the fiber optic network. In an analogous art, Crayford discloses wherein the network connector is a switch for controlling

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signal communication over the fiber optic network cable to avoid signal collisions and maintain determinism throughout the fiber optic network (col. 14 lines 3-12). Crayford discloses further wherein the step of controlling signal communication on the sub-network comprises a switch for controlling signal communication over the fiber optic network cable to avoid signal collisions and maintain determinism on the sub-network (col. 14 lines 3-12 as set forth in claim 14).

One skilled in the art would have recognized the network connector is a switch for controlling signal communication over the fiber optic network cable to avoid signal collisions and maintain determinism throughout the fiber optic network to use the teachings of Crayford in the system of Deitz et al. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to use the network connector is a switch for controlling signal communication over the fiber optic network cable to avoid signal collisions and maintain determinism throughout the fiber optic network as taught by Crayford in Deitz et al.'s system with the motivation being to improve upon physical cabling restraint (col. 14 lines 1-9).

10. Claims 15 and 19-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deitz et al. (U.S. Patent 6,578,158 B1) in view of El-Batal (U.S. Patent 6,192,027 B1) and Lelaure et al. (U.S. Patent 6,640,314 B1) further in view of Fujimori et al. (U.S. Patent 6,542,510 B1).

For claims 15 and 20-21, Deitz et al. disclose method and apparatus for providing a RAID controller having transparent failover and failback comprising the steps of:

providing a first and a second controller, each controller having an operating state (figure 1, col. 4 lines 62-64);

providing an IO module (figure 1, col. 5 lines 41-46);

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controlling signal communication over the fiber optic sub-network (figure 1, col. 5 lines 18-25);

operably connecting the first controller, the second controller, the module and a network connector with a fiber optic cable and forming a sub-network (figure 1, col. 5 lines 18-32 and col. 5 lines 41-46).

Deitz et al. do not disclose wherein data is transferred throughout the sub-network at a rate of at least 100 Mb/s. In an analogous art, El-Batal discloses wherein data is transferred throughout the sub-network at a rate of at least 100 Mb/s (col. 4 line 35).

One skilled in the art would have recognized a rate of at least 100 Mb/s to use the teachings of El-Batal in the system of Deitz et al. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to use the rate of at least 100 Mb/s as taught by El-Batal in Deitz et al.'s system with the motivation being to provide a RAID disc array controller system with supporting dual 100 Mb/s Fibre Channel host ports and quad Fibre Channel disc ports (col. 4 lines 34-44).

However, Deitz et al. in view of El-Batal do not disclose:

assigning a network identifier to each controller;

placing one controller in primary mode and the other controller in secondary mode;

sensing the operating state of each controller, wherein the network identifier of each controller is selected in response to the operating state of each respective controller, exchanging the network identifiers between the first and second controllers.

In an analogous art, Lelaure et al. disclose:

assigning a network identifier to each controller (figure 2, col. 3 lines 17-21);

placing one controller in primary mode and the other controller in secondary mode (col. 3 lines 1-6);

sensing the operating state of each controller, wherein the network identifier of each controller is selected in response to the operating state of each respective controller (figure 2, col. 3 lines 17-21),

exchanging the network identifiers between the first and second controllers (figures 2 and 3, col. 3 lines 45-56). Lelaure et al. disclose further wherein the network identifier is an Internet Protocol address (figure 2, col. 3 lines 17-21 as set forth in claim 20); wherein the network identifier is a Media Access Control address (figure 2, col. 3 lines 17-21 as set forth in claim 21); a master-slave type application layer protocol to ensure that only one signal is being transmitted at a time (col. 2 lines 35-37 as set forth in claim 23).

One skilled in the art would have recognized assigning a network identifier to use the teachings of Lelaure et al. in the system of Deitz et al. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to use the network identifier as taught by Lelaure et al. in Deitz et al. with the motivation being to identify uniquely the application that is running on the equipment in the physical sense of the term (col. 2 lines 32-35).

Furthermore, Deitz et al. in view of El-Batal and Lelaure et al. do not disclose transmitting a reverse address resolution protocol (RARP) message. In an analogous art, Fujimori et al. disclose transmitting a reverse address resolution protocol (RARP) message (figure 1, col. 1 lines 60-62).

One skilled in the art would have recognized transmitting a reverse address resolution protocol (RARP) message to use the teachings of Fujimori et al. in the system of Deitz et al.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to use the disclose transmitting a reverse address resolution protocol (RARP) message as taught by Fujimori et al. in Deitz et al.'s system with the motivation being to determine its IP address through the network (col. 1 lines 50-51).

For claim 19, Deitz et al. disclose wherein the sub-network is an Ethernet network (figure 1, col. 5 lines 18-25).

For claim 22, Deitz et al. disclose wherein the network connector is a hub for controlling signal communication over the fiber optic network (figure 1, col. 5 lines 18-25).

11. Claims 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deitz et al. (U.S. Patent 6,578,158 B1) in view of El-Batal (U.S. Patent 6,192,027 B1) and Lelaure et al. (U.S. Patent 6,640,314 B1) and Fujimori et al. (U.S. Patent 6,542,510 B1) further in view of Flood et al. (U.S. Patent 4,937,777).

For claims 16-18, Deitz et al. in view of El-Batal and Lelaure et al. and Fujimori et al. disclose:

a processor (figure 1, col. 5 line 54);

an operating system executed by the processor (figure 1, col. 5 lines 48-55).

However, Deitz et al. in view of El-Batal and Lelaure et al. and Fujimori et al. do not disclose:

a co-processor;

a co-operating system executed by the co-processor wherein the operating system and the co-operating system cooperate to transmit data throughout the sub-network.

In an analogous art, Flood et al. disclose:

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a co-processor (figure 4, col. 11 lines 54-61);

a co-operating system executed by the co-processor (figure 4, col. 11 lines 51-61). Flood et al. in view of Deitz et al., El-Batal, Lelaure et al. and Fujimori et al. disclose wherein the operating system and the co-operating system cooperate to transmit data throughout the sub-network (figure 1, col. 4 lines 61-68 and col. 10 lines 56-65 and col. 11 lines 52-61). Flood et al. disclose further wherein the co-processor is embedded within the processor (col. 11 lines 54-61 as set forth in claim 17); wherein the operating system is embedded (col. 11 lines 52-58 as set forth in claim 18).

One skilled in the art would have recognized a co-processor to use the teachings of Flood et al. in the system of Deitz et al. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to use the co-processor as taught by Flood et al. in Deitz et al.'s system with the motivation being to execute specific types of instructions included in the control program (col. 11 lines 52-54).

12. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Deitz et al. (U.S. Patent 6,578,158 B1) in view of El-Batal (U.S. Patent 6,192,027 B1) and Lelaure et al. (U.S. Patent 6,640,314 B1) and Fujimori et al. (U.S. Patent 6,542,510 B1) further in view of Crayford (U.S. Patent 5,673,254).

For claim 24, Deitz et al. in view of El-Batal and Lelaure et al. and Fujimori et al. do not disclose wherein the network connector is a switch for controlling signal communication over the fiber optic network cable to avoid signal collisions and maintain determinism throughout the fiber optic network. In an analogous art, Crayford discloses wherein the network connector is a

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switch for controlling signal communication over the fiber optic network cable to avoid signal collisions and maintain determinism throughout the fiber optic network (col. 14 lines 3-12).

One skilled in the art would have recognized the network connector is a switch for controlling signal communication over the fiber optic network cable to avoid signal collisions and maintain determinism throughout the fiber optic network to use the teachings of Crayford in the system of Deitz et al. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to use the network connector is a switch for controlling signal communication over the fiber optic network cable to avoid signal collisions and maintain determinism throughout the fiber optic network as taught by Crayford in Deitz et al.'s system with the motivation being to improve upon physical cabling restraint (col. 14 lines 1-9).

***Contact Information***

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Toan D Nguyen whose telephone number is 703-305-0140. The examiner can normally be reached on Monday- Friday (7:00AM-4:30PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Huy Vu can be reached on 703-308-6602. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-9600.

*Toan D. Nguyen*

Toan D. Nguyen